

What is claimed is:

1. A information recording medium storing digital data and management information managing the digital data, wherein

5 wherein

the management information comprises:

first time map information provided for a first object that is a digital stream in which digital data is packet-multiplexed, and in which, for each predetermined unit, an address on the medium of the digital data is related to a playback time of the digital data and stored to the medium; and

second time map information provided for a second object that is a digital stream in which digital data is packet-multiplexed for each predetermined unit, of which contents can not be identified, and in which, for each predetermined unit, an address on the medium of the digital data is related to an arrival time of the packet and stored to the medium.

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2. The information recording medium according to claim 1, wherein the first object and the second object are recorded separately to different object files.

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3. A recording apparatus for recording a digital stream in which digital data is packet-multiplexed to a recording medium, wherein:

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a playback time of the digital data and stored, and second time map information in which, for each predetermined unit, an address on the medium of the digital data is related to an arrival time of the packet and stored;

5 the apparatus comprises

I/F section that receives the digital stream from external.

map creation section that creates the time map information according to the received digital stream, and

10 recording section that records the digital stream
and the time map information to the recording medium; and

in recording the digital stream to the recording medium, the map creation section analyzes the digital stream, and based on the analysis result creates the first time map information when the playback time information can be identified, or creates the second time map information when the playback time information can not be identified.

4. A recording method of recording a digital stream
20 in which digital data is packet-multiplexed to a recording
medium, wherein:

the recording medium is capable of storing

first time map information in which, for each predetermined unit, an address on the medium of the digital data is related to a playback time of the digital data and stored, and second time map information in which, for each predetermined unit, an address on the medium of the digital data is related to an arrival time of the packet and stored; and

30 the method comprises

analyzing the digital stream for recording the digital stream to the recording medium,

creating the first time map information when the playback time information can be identified, or creating the second time map information when the playback time information can not be identified, based on the analysis result, and

recording the digital stream and the time map information to the recording medium.

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5. A reproducing apparatus for reproducing information from a recording medium storing a digital stream in which digital data is packet-multiplexed, wherein:

15 the recording medium is capable of storing first
time map information in which, for each predetermined unit,
an address on the medium of the digital data is related to
a playback time of the digital data and stored, and second
time map information in which, for each predetermined unit,
20 an address on the medium of the digital data is related to
an arrival time of the packet and stored;

the apparatus comprises

reproducing section that reads and reproduces the digital stream from the recording medium,

25 I/F section that receives information to designate the digital stream to be reproduced and information to designate start time of the playback, and control section to control the reproducing section; and

30 the control section controls the reproducing

section so as to determine whether the time map information of the designated digital stream is the first time map information or the second time map information, specify a read address with reference to the time map information by using a time axis according to the type of the time map information, and then start the playback from the specified address.

6. A reproducing method of reproducing information
10 from a recording medium storing a digital stream in which
digital data is packet-multiplexed, wherein:

the recording medium is capable of storing first time map information in which, for each predetermined unit, an address on the medium of the digital data is related to a playback time of the digital data and stored, and second time map information in which, for each predetermined unit, an address on the medium of the digital data is related to an arrival time of the packet and stored;

the method comprises

20 reading and reproducing the digital stream from
the recording medium,

receiving information to designate the digital stream to be reproduced and information to designate start time of the playback, and

25 controlling the playback; and

the controlling comprises determining whether the time map information of the designated digital stream is the first time map information or the second time map information, specifying a read address with reference to the time map information by using a time axis according to

the type of the time map information, and then starting the playback from the specified address.

7. A program capable of enabling a computer to
5 operate as the recording apparatus according to claim 3.

8. A computer readable recording medium storing the program according to claim 7.

10 9. A program capable of enabling a computer to
operate as the reproducing apparatus according to claim 5.

10. A computer readable recording medium storing the program according to claim 9.